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RESUMEN

Leg strength is an important determinant of lumbar spine bone mass in elderly people	Gomez-Cabello, A., Vicente-Rodríguez, G., González-Agüero, A., Moreno, L. A., Ara, I., y Casajús, J. A.

Introduction: it is widely recognised that bone mass declines and risk of fracture increases during the aging process. About 2.7 million osteoporotic fractures occur every year in men and women in Europe. Muscle strength seems to be an important factor to maintain bone mineral density (BMD) and to decrease the risk of fractures. The purpose of this abstract was to test the association between bone related variables at lumbar spine and leg strength in elderly men and women from Spain.

Materials and methods: a total of 220 subjects (64 men and 156 women) aged 73.01 ± 5.9 were evaluated in Zaragoza (Spain) within the framework of the elderly EXERNET multi-centre study. Area, bone mineral content (BMC) and BMD was assessed by dual-energy X-ray absorptiometry (DXA) at lumbar spine. Leg strength was measured using the Chair Stand Test (included in the Senior Fitness Test battery). Differences between male and female were studied with one-way ANOVA. The association between leg strength and bone related variables were tested by linear regression accounting for differences in age, height and lean mass. Sample was subdivided in three groups according to tertiles of leg strength. Differences in bone related variables according to these tertiles were analyzed with ANCOVA.

Results: there were no significant differences in leg strength between men and women. Linear regression showed that leg strength was associated with lumbar BMD in men explaining 34.6% of variation (P<0.05). In women, leg strength was associated with lumbar area and BMC explaining 15.9 and 14.6% respectively (P<0.05). Women in the lowest tertile of leg strength had lower values of lumbar area ($50.95 \text{ cm}^2 \pm 5.8$ vs. $52.01 \text{ cm}^2 \pm 5.0$; P<0.05) and BMC ($39.19 \text{ g} \pm 1.1$ vs. $43.62 \text{ g} \pm 1.0$; P<0.05) compared with women in the highest tertile. Similarly, men in the lowest tertile had lower lumbar BMD compared with those in the highest tertile ($0.93 \text{ g/cm}^2 \pm 0.1$ vs. $1.16 \text{ g/cm}^2 \pm 0.04$; P<0.05).

Conclusion: leg strength seems to be an important component of physical fitness with a large association with bone mass at lumbar spine both, in men and women. This may influence the risk of bone fracture in elderly independently of the gender.

Palabras clave (máximo 3): physical fitness, fractures